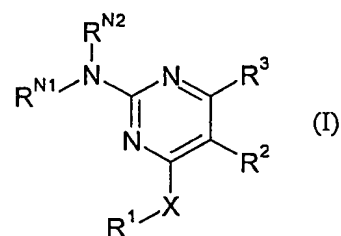


CLAIMS

1. The use of a compound of formula I:



or a pharmaceutically acceptable salt thereof, in the preparation of a medicament for the treatment of a condition alleviated by antagonism of a 5-HT_{2B} receptor, wherein:

X is O or NH;

R² and R³ are independently selected from the group consisting of H, and optionally substituted C₁₋₆ alkyl, C₃₋₇ cycloalkyl, C₃₋₇ cycloalkyl-C₁₋₄ alkyl, and phenyl-C₁₋₄ alkyl; R¹ is an optionally substituted C₉₋₁₄ aryl group or an optionally substituted C₅₋₇ aryl group;

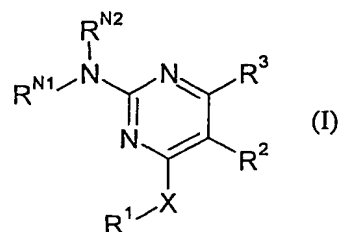
R^{N1} and R^{N2} are either:

- (i) independently selected from H, R, R', SO₂R, C(=O)R, (CH₂)_nNR^{N3}R^{N4}, where n is from 1 to 4 and R^{N3} and R^{N4} are independently selected from H and R, where R is optionally substituted C₁₋₄ alkyl, and R' is optionally substituted phenyl-C₁₋₄ alkyl, or
- (ii) together with the nitrogen atom to which they are attached, form an optionally substituted C₅₋₇ heterocyclic group.

2. The use according to claim 1, wherein R^{N1} and R^{N2} are independently selected from H and R.

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3. The use according to claim 2, wherein R^{N1} and R^{N2} are both H.
4. The use according to any one of claims 1 to 3, wherein R^2 is H.
5. The use according to any one of claims 1 to 4, wherein R^3 is methyl.
6. The use according to any one of claims 1 to 5, wherein X is NH.
7. The use according to any one of claims 1 to 6, wherein R^1 is selected from an optionally substituted C_{9-14} aryl group and an optionally substituted bi- C_{5-7} aryl group.
8. The use according to claim 7, wherein R^1 is an optionally substituted naphthyl group.
9. The use according to claim 7, wherein R^1 is an optionally substituted biphenyl group.
10. The use according to any one of claims 1 to 9, wherein the condition alleviated by antagonism of a 5-HT_{2B} receptor is a disorder of the GI tract.
11. The use of a compound of formula I:



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or a pharmaceutically acceptable salt thereof in a method of therapy, wherein:

X is O or NH;

R² and R³ are independently selected from the group consisting of H, and optionally substituted C₁₋₆ alkyl, C₃₋₇ cycloalkyl, C₃₋₇ cycloalkyl-C₁₋₄ alkyl, and phenyl-C₁₋₄ alkyl;

R¹ is an optionally substituted C₉₋₁₄ aryl group or an optionally substituted C₅₋₇ aryl group;

R^{N1} and R^{N2} are either:

(i) independently selected from H, R, R', SO₂R, C(=O)R, (CH₂)_nNR^{N3}R^{N4}, where n is from 1 to 4 and R^{N3} and R^{N4} are independently selected from H and R, where R is optionally substituted C₁₋₄ alkyl, and R' is optionally substituted phenyl-C₁₋₄ alkyl, or

(ii) together with the nitrogen atom to which they are attached, form an optionally substituted C₅₋₇ heterocyclic group;

with the proviso that when R^{N1}, R^{N2} and R² are H, R³ is methyl, and X is NH, then R¹ is not: phenyl; 3-I-phenyl, 4-Me-phenyl; 3,5-diacetyl-phenyl, 3-acetyl-phenyl; 4-acetyl-phenyl; and 2-carboxy-phenyl.

12. The use according to claim 11, wherein R^{N1} and R^{N2} are independently selected from H and R.

13. The use according to claim 12, wherein R^{N1} and R^{N2} are both H.

14. The use according to any one of claims 11 to 13, wherein R² is H.

15. The use according to any one of claims 11 to 14, wherein R³ is methyl.

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16. The use according to any one of claims 11 to 15, wherein X is NH.

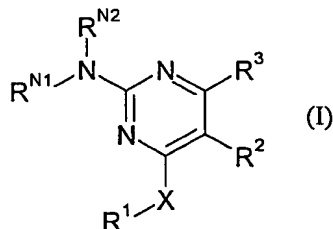
17. The use according to any one of claims 11 to 16, wherein R¹ is selected from an optionally substituted C₉₋₁₄ aryl group and an optionally substituted bi-C₅₋₇ aryl group.

18. The use according to claim 17, wherein R¹ is an optionally substituted naphthyl group.

19. The use according to claim 17, wherein R¹ is an optionally substituted biphenyl group.

20. A pharmaceutical composition comprising a compound of formula I as defined in any one of claims 11 to 19, or a pharmaceutically acceptable salt thereof, together with a pharmaceutically acceptable carrier or diluent.

21. A compound of formula I:



or a salt, solvate and chemically protected form thereof, wherein:

X is O or NH;

R² and R³ are independently selected from the group consisting of H, and optionally substituted C₁₋₆ alkyl, C₃₋₇ cycloalkyl, C₃₋₇ cycloalkyl-C₁₋₄ alkyl, and phenyl-C₁₋₄ alkyl; R¹ is an optionally substituted C₉₋₁₄ aryl group or an optionally substituted bi-C₅₋₇ aryl group;

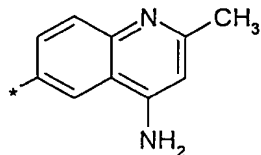
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R^{N1} and R^{N2} are either:

(i) independently selected from H, R, R', SO_2R , $C(=O)R$, $(CH_2)_nNR^{N3}R^{N4}$, where n is from 1 to 4 and R^{N3} and R^{N4} are independently selected from H and R, where R is optionally substituted C_{1-4} alkyl, and R' is optionally substituted phenyl- C_{1-4} alkyl, or

(ii) together with the nitrogen atom to which they are attached, form an optionally substituted C_{5-7} heterocyclic group;

with the provisos that when R^{N1} , R^{N2} and R^2 are H, R^3 is methyl, and X is NH, then R^1 is not:



and that when R^{N1} , R^{N2} and R^2 are H, R^3 is methyl, and X is NH, then R^1 is not: phenyl; 3-I-phenyl, 4-Me-phenyl; 3,5-diacetyl-phenyl, 3-acetyl-phenyl; 4-acetyl-phenyl; and 2-carboxy-phenyl.

22. The compound according to claim 21, wherein R^{N1} and R^{N2} are independently selected from H and R.

23. The compound according to claim 22, wherein R^{N1} and R^{N2} are both H.

24. The compound according to any one of claims 21 to 23, wherein R^2 is H.

25. The compound according to any one of claims 21 to 24, wherein R^3 is methyl.

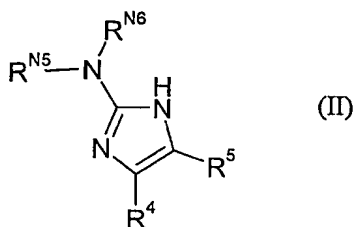
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26. The compound according to any one of claims 21 to 25, wherein X is NH.

27. The compound according to any one of claims 21 to 26, wherein R¹ is an optionally substituted naphthyl group.

28. The compound according to any one of claims 21 to 26, wherein R¹ is an optionally substituted biphenyl group.

29. The use of a compound of formula II:



or a pharmaceutically acceptable salt thereof, in the preparation of a medicament for the treatment of a condition alleviated by antagonism of a 5-HT_{2B} receptor, wherein:

R⁵ is selected from the group consisting of H, and optionally substituted C₁₋₆ alkyl, C₃₋₇ cycloalkyl, C₃₋₇ cycloalkyl-C₁₋₄ alkyl, and phenyl-C₁₋₄ alkyl;

R⁴ is an optionally substituted C₉₋₁₄ aryl group or an optionally substituted bi-C₅₋₇ aryl group;

R^{N5} and R^{N6} are either:

(i) independently selected from H, R, R', SO₂R, C(=O)R, (CH₂)_nNR^{N7}R^{N8}, where n is from 1 to 4 and R^{N7} and R^{N8} are independently selected from H and R, where R is optionally substituted C₁₋₄ alkyl, and R' is optionally substituted phenyl-C₁₋₄ alkyl, or

(ii) together with the nitrogen atom to which they are

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attached, form an optionally substituted C₅₋₇ heterocyclic group.

30. The use according to claim 29, wherein R^{N5} and R^{N6} are independently selected from H, R and C(=O)R, where R is an optionally substituted C₁₋₄ alkyl group.

31. The use according to claim 30, wherein at least one of R^{N5} and R^{N6} is H, and the other is selected from H and C(=O)Me.

32. The use according to any one of claims 29 to 31, wherein R⁵ is H.

33. The use according to any one of claims 29 to 32, wherein R⁴ is preferably a C₉₋₁₄ aryl group or a 3- or 4-C₅₋₆ aryl-C₅₋₆ aryl group.

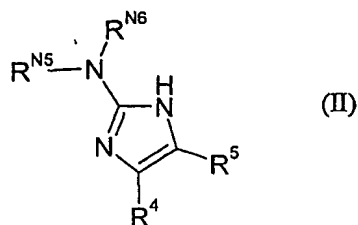
34. The use according to claim 33, wherein R⁴ is an optionally substituted C₉₋₁₄ carboaryl group.

35. The use according to claim 34, wherein R⁴ is an optionally substituted naphthyl group.

36. The use according to any one of claims 29 to 35, wherein the condition alleviated by antagonism of a 5-HT_{2B} receptor is a disorder of the GI tract.

37. The use of a compound of formula II:

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or a pharmaceutically acceptable salt thereof, in a method of therapy, wherein:

R^5 is selected from the group consisting of H, and optionally substituted C_{1-6} alkyl, C_{3-7} cycloalkyl, C_{3-7} cycloalkyl- C_{1-4} alkyl, and phenyl- C_{1-4} alkyl;

R^4 is an optionally substituted C_{9-14} aryl group or an optionally substituted bi- C_{5-7} aryl group;

R^{N5} and R^{N6} are either:

(i) independently selected from H, R, R' , SO_2R , $C(=O)R$, $(CH_2)_nNR^{N7}R^{N8}$, where n is from 1 to 4 and R^{N7} and R^{N8} are independently selected from H and R, where R is optionally substituted C_{1-4} alkyl, and R' is optionally substituted phenyl- C_{1-4} alkyl, or

(ii) together with the nitrogen atom to which they are attached, form an optionally substituted C_{5-7} heterocyclic group;

with the proviso that when R^{N5} , R^{N6} and R^5 are H, R^4 is not unsubstituted 1- or 2-naphthyl or unsubstituted 4-phenyl-phenyl.

38. The use according to claim 37, wherein R^{N5} and R^{N6} are independently selected from H, R and $C(=O)R$, where R is preferably an optionally substituted C_{1-4} alkyl group.

39. The use according to claim 38, wherein at least one of R^{N5} and R^{N6} is H, and the other is selected from H and $C(=O)Me$.

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40. The use according to any one of claims 37 to 39, wherein R⁵ is H.

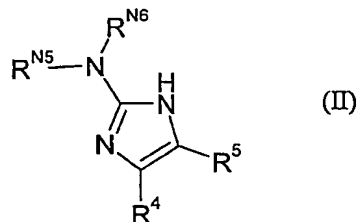
41. The use according to any one of claims 37 to 40, wherein R⁴ is preferably an optionally substituted C₉₋₁₄ aryl group or an optionally substituted 3- or 4-C₅₋₆ aryl-C₅₋₆ aryl group.

42. The use according to claim 41, wherein R⁴ is an optionally substituted C₉₋₁₄ carboaryl group.

43. The use according to claim 42, wherein R⁴ is an optionally substituted naphthyl group.

44. A pharmaceutical composition comprising a compound of formula II as defined in any one of claims 37 to 43, or a pharmaceutically acceptable salt thereof, together with a pharmaceutically acceptable carrier or diluent.

45. A compound of formula II:



or a salt, solvate and chemically protected form thereof, wherein:

R⁵ is selected from the group consisting of H, and optionally substituted C₁₋₆ alkyl, C₃₋₇ cycloalkyl, C₃₋₇ cycloalkyl-C₁₋₄ alkyl, and phenyl-C₁₋₄ alkyl;

R⁴ is an optionally substituted C₉₋₁₄ aryl group or an optionally substituted bi-C₅₋₇ aryl group;

R^{N5} and R^{N6} are either:

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(i) independently selected from H, R, R', SO₂R, C(=O)R, (CH₂)_nNR^{N7}R^{N8}, where n is from 1 to 4 and R^{N7} and R^{N8} are independently selected from H and R, where R is optionally substituted C₁₋₄ alkyl, and R' is optionally substituted phenyl-C₁₋₄ alkyl, or

(ii) together with the nitrogen atom to which they are attached, form an optionally substituted C₅₋₇ heterocyclic group;

with the provisos that when R^{N5}, R^{N6} and R⁵ are H, R⁴ is not unsubstituted 1- or 2-naphthyl or unsubstituted 4-phenyl-phenyl

and that when R^{N6} and R⁵ are H, and R^{N5} is acetyl then R⁴ is not unsubstituted 2-naphthyl.

46. The compound according to claim 45, wherein R^{N5} and R^{N6} are independently selected from H, R and C(=O)R, where R is preferably an optionally substituted C₁₋₄ alkyl group.

47. The compound according to claim 46, wherein at least one of R^{N5} and R^{N6} is H, and the other is selected from H and C(=O)Me.

48. The compound according to any one of claims 45 to 47, wherein R⁵ is H.

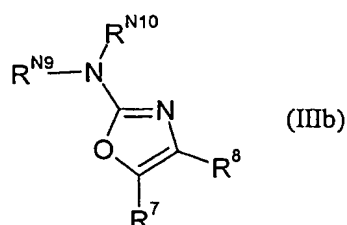
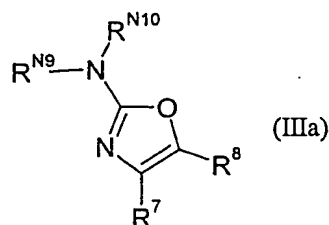
49. The compound according to any one of claims 45 to 48, wherein R⁴ is preferably an optionally substituted C₉₋₁₄ aryl group or an optionally substituted 3- or 4-C₅₋₆ aryl-C₅₋₆ aryl group.

50. The compound according to claim 49, wherein R⁴ is an optionally substituted C₉₋₁₄ carboaryl group.

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51. The compound according to claim 50, wherein R^4 is an optionally substituted naphthyl group.

52. The use of a compound of formula IIIa or IIIb:



or a pharmaceutically acceptable salt thereof, in the preparation of a medicament for the treatment of a condition alleviated by antagonism of a 5-HT_{2B} receptor, wherein:

R^8 is selected from the group consisting of H, and optionally substituted C₁₋₆ alkyl, C₃₋₇ cycloalkyl, C₃₋₇ cycloalkyl-C₁₋₄ alkyl, and phenyl-C₁₋₄ alkyl;

R^7 is an optionally substituted bi-C₅₋₇ aryl group;

R^{N9} and R^{N10} are either:

(i) independently selected from H, R, R', SO₂R, C(=O)R, (CH₂)_nNR^{N11}R^{N12}, where n is from 1 to 4 and R^{N11} and R^{N12} are independently selected from H and R, where R is optionally substituted C₁₋₄ alkyl, and R' is optionally substituted phenyl-C₁₋₄ alkyl, or

(ii) together with the nitrogen atom to which they are attached, form an optionally substituted C₅₋₇ heterocyclic group.

53. The use according to claim 52, wherein the compound is of formula (IIIb).

54. The use according to either claim 52 or claim 53, wherein R^8 is selected from H and optionally substituted

C₁₋₆ alkyl.

55. The use according to claim 54, wherein R⁸ is H or methyl.

56. The use according to any one of claims 52 to 55, wherein R^{N9} and R^{N10} are independently selected from H and R.

57. The use according to claim 56, wherein R is an optionally substituted C₁₋₄ alkyl group.

58. The use according to any one of claims 52 to 57, wherein R⁷ is an optionally substituted bi-C₆ aryl group.

59. The use according to claim 58, wherein R⁷ is an optionally substituted bi-phenyl group.

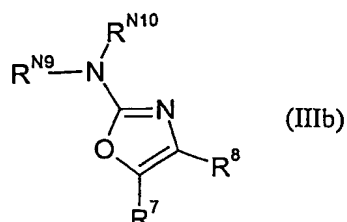
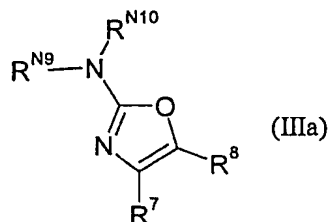
60. The use according to any one of claims 52 to 59, wherein the condition alleviated by antagonism of a 5-HT_{2B} receptor is a disorder of the GI tract.

61. The use of a compound of formula IIIa or IIIb as defined in any one of claims 52 to 60, or a pharmaceutically acceptable salt thereof, in a method of therapy.

62. A pharmaceutical composition comprising a compound of formula IIIa or IIIb as defined in any one of claims 52 to 60, or a pharmaceutically acceptable salt thereof, together with a pharmaceutically acceptable carrier or diluent.

63. A compound of formula IIIa or IIIb:

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or a salt, solvate and chemically protected form thereof, wherein:

R^8 is selected from the group consisting of H, and optionally substituted C_{1-6} alkyl, C_{3-7} cycloalkyl, C_{3-7} cycloalkyl- C_{1-4} alkyl, and phenyl- C_{1-4} alkyl;

R^7 is an optionally substituted bi- C_{5-7} aryl group;

R^{N9} and R^{N10} are either:

(i) independently selected from H, R, R' , SO_2R , $C(=O)R$, $(CH_2)_nNR^{N11}R^{N12}$, where n is from 1 to 4 and R^{N11} and R^{N12} are independently selected from H and R, where R is optionally substituted C_{1-4} alkyl, and R' is optionally substituted phenyl- C_{1-4} alkyl, or

(ii) together with the nitrogen atom to which they are attached, form an optionally substituted C_{5-7} heterocyclic group;

with the proviso that in formula IIIb, when R^{N9} , R^{N10} and R^8 are H, R^7 is not 4-phenyl-phenyl.

64. The compound according to claim 63, wherein the compound is of formula (IIIb).

65. The compound according to either claim 63 or claim 64, wherein R^8 is selected from H and optionally substituted C_{1-6} alkyl.

66. The compound according to claim 65, wherein R^8 is H or methyl.

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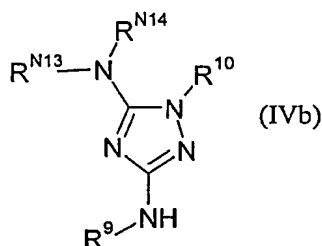
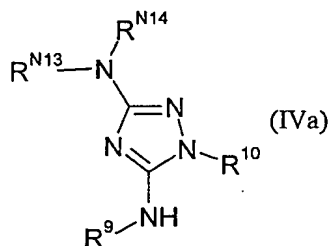
67. The compound according to any one of claims 63 to 66, wherein R^{N9} and R^{N10} are independently selected from H and R.

68. The compound according to claim 67, wherein R is an optionally substituted C_{1-4} alkyl group.

69. The compound according to any one of claims 63 to 68, wherein R^7 is an optionally substituted bi- C_6 aryl group.

70. The compound according to claim 69, wherein R^7 is an optionally substituted bi-phenyl group.

71. A compound of formula IVa or IVb:



or a salt, solvate and chemically protected form thereof, wherein:

R^{N10} is selected from the group consisting of H and optionally substituted C_{1-6} alkyl;

R^9 is an optionally substituted C_{9-14} aryl group or an optionally substituted bi- C_{5-7} aryl group;

R^{N13} and R^{N14} are either:

(i) independently selected from H, R, R' , SO_2R , $C(=O)R$, $(CH_2)_nNR^{N15}R^{N16}$, where n is from 1 to 4 and R^{N15} and R^{N16} are independently selected from H and R, where R is optionally substituted C_{1-4} alkyl, and R' is optionally substituted phenyl- C_{1-4} alkyl, or

(ii) together with the nitrogen atom to which they are

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attached, form an optionally substituted C₅₋₇ heterocyclic group,

with the proviso that when R¹⁰, R^{N13} and R^{N14} are H, R⁹ is not an unsubstituted naphthyl group.

72. A compound according to claim 71, wherein the compound is of formula (IVb).

73. The compound according to either claim 71 or claim 72, wherein R¹⁰ is selected from H and optionally substituted C₁₋₆ alkyl.

74. The compound according to claim 73, wherein R¹⁰ is methyl.

75. The compound according to any one of claims 71 to 74, wherein R^{N13} and R^{N14} are independently selected from H and R.

76. The compound according to claim 75, wherein R is preferably an optionally substituted C₁₋₄ alkyl group.

77. The compound according to any one of claims 71 to 76, wherein R⁹ is an optionally substituted bi-C₆ aryl group.

78. The compound according to any one of claims 71 to 77, wherein R⁹ is an optionally substituted bi-phenyl group.

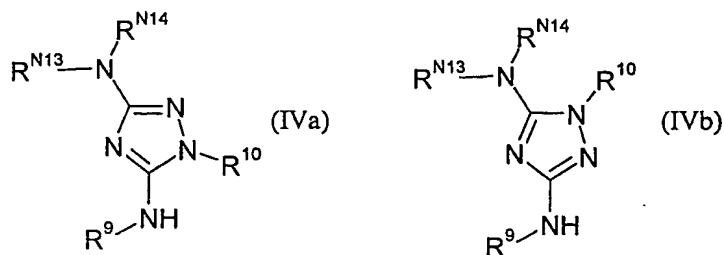
79. The use of a compound of formula IVa or IVb as defined in any one of claims 71 to 78, or a pharmaceutically acceptable salt thereof in a method of therapy.

80. A pharmaceutical composition comprising a compound of formula IVa or IVb as defined in any one of claims 71 to 78,

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or a pharmaceutically acceptable salt thereof together with a pharmaceutically acceptable carrier or diluent.

81. The use of a compound of formula IVa or IVb:



or a pharmaceutically acceptable salt thereof, in the preparation of a medicament for the treatment of a condition alleviated by antagonism of a 5-HT_{2B} receptor, wherein:

R¹⁰ is selected from the group consisting of H and optionally substituted C₁₋₆ alkyl;

R⁹ is an optionally substituted C₉₋₁₄ aryl group or an optionally substituted bi-C₅₋₇ aryl group;

R^{N13} and R^{N14} are either:

(i) independently selected from H, R, R', SO₂R, C(=O)R, (CH₂)_nNR^{N15}R^{N16}, where n is from 1 to 4 and R^{N15} and R^{N16} are independently selected from H and R, where R is optionally substituted C₁₋₄ alkyl, and R' is optionally substituted phenyl-C₁₋₄ alkyl, or

(ii) together with the nitrogen atom to which they are attached, form an optionally substituted C₅₋₇ heterocyclic group.

82. The use according to claim 81, wherein the condition which can be alleviated by antagonism of a 5-HT_{2B} receptor is a disorder of the GI tract.

83. The use according to either claim 81 or claim 82, wherein the compound is of formula (IVb).

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84. The use according to any one of claims 81 to 83, wherein R^{10} is selected from H and optionally substituted C_{1-6} alkyl.

85. The use according to claim 84, wherein R^{10} is methyl.

86. The use according to any one of claims 81 to 85, wherein R^{N13} and R^{N14} are independently selected from H and R.

87. The use according to claim 86, wherein R is preferably an optionally substituted C_{1-4} alkyl group.

88. The use according to any one of claims 81 to 87, wherein R^9 is an optionally substituted bi- C_6 aryl group.

89. The use according to any one of claims 81 to 88, wherein R^9 is an optionally substituted bi-phenyl group.